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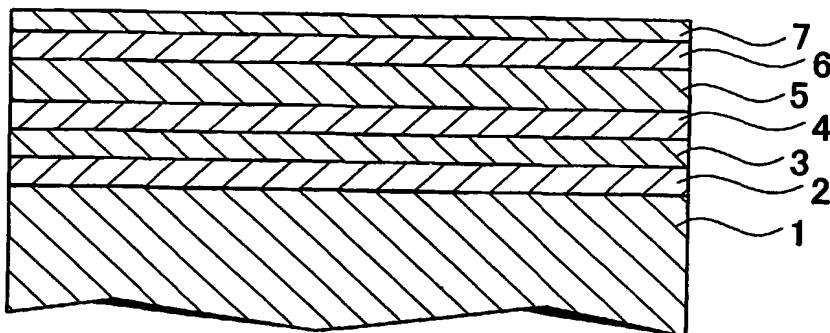
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(54) Title: MAGNETIC RECORDING MEDIUM, METHOD OF MANUFACTURING THEREFOR, AND MAGNETIC READ/WRITE APPARATUS

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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[Continued on next page]



(57) Abstract: A soft magnetic undercoat film, a first undercoat film, a second undercoat film, a perpendicular magnetic recording film, and a protective film are provided on a non-magnetic substrate, and the first undercoat film consists of Pt, Pd, or an alloy including at least one among these, and the second undercoat film consists of Ru or an Ru alloy.



Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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27 January 2005

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/000205

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G11B5/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2002 334424 A (SHOWA DENKO) 22 November 2002 (2002-11-22) Y page 3, paragraphs 3,4,6 page 4, paragraphs 12,13,15 page 5, paragraph 19-21 page 6, paragraph 28 page 7, paragraph 38 page 8, paragraphs 47,50,51 page 9, paragraph 54 page 10; table 2 figures 1,2 ----- US 6 277 484 B1 (SHIMODA ET AL.) 21 August 2001 (2001-08-21) column 3, line 3 - line 19 -----	1-11,13, 14 12
Y		12 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the International search

12 May 2004

Date of mailing of the International search report

15 NOV 2004

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INTERNATIONAL SEARCH REPORTInternational Application No
PCT/JP2004/000205**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 08 031639 A (CENSTOR) 2 February 1996 (1996-02-02) column 2, paragraph 5; claims 1,2; figure 1 -----	1-14

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/JP2004/000205

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2002334424	A 22-11-2002	NONE	
US 6277484	B1 21-08-2001	JP 11328650 A	30-11-1999
JP 8031639	A 02-02-1996	NONE	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/000205

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-14

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14

Magnetic recording medium comprising first undercoat layer with Pt and/or Pd and second undercoat layer with Ru, method of manufacturing and magnetic read/write apparatus

2. claims: 15-27

Magnetic recording medium comprising undercoat layer with Pt and C, or with Pd and C, method of manufacturing and magnetic read/write apparatus
